

WHAT IS CLAIMED IS:

1. An imageable composition comprising:
an acid curable composition;
5 an acid generator;
an infrared absorber; and optionally
a colorant;
wherein at least one of said infrared absorber and said colorant has
a counter anion derived from a non-volatile acid.
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2. The composition of claim 1, wherein said acid curable
composition comprises:
a binder; and
a crosslinking agent for said binder.
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3. The composition of claim 2, wherein said binder comprises a
polymer having at least two reactive groups each independently selected
from the group consisting of: hydroxy, carboxylic acid, amine, carbamate,
amide, sulfonamide and imide.
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4. The composition of claim 3, wherein said reactive group in
said polymer is a hydroxy group.
5. The composition of claim 4, wherein said polymer is selected
25 from the group consisting of: a polyol, a polyether polyol, a novolak resin,
a resole resin, a hydroxyfunctional acrylic resin, a hydroxyfunctional
polyester resin and combination thereof.
6. The composition of claim 2, wherein said binder is a novolak
30 resin.

7. The composition of claim 2, wherein said crosslinking agent is selected from the group consisting of: a resole resin, an amino resin, an amido resin, an epoxy compound having at least two epoxide groups and a combination thereof.

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8. The composition of claim 7, wherein said crosslinking agent is resole resin.

9. The composition of claim 8, wherein said binder is a novolak resin.

10 10. The composition of claim 7, wherein said crosslinking agent is an amino resin having at least two alkoxyethyl groups.

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11. The composition of claim 10, wherein said amino resin is selected from the group consisting of: an alkoxyethylated melamine resin, an alkoxyethylated benzoguanamine resin, an alkoxyethylated glycoluril, an alkoxyethylated polyacrylamid, an alkoxyethylated polymethacrylamid and a combination thereof.

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12. The composition of claim 11, wherein said amino resin is an alkoxyethylated melamine resin having from about 2 to about 6 methoxymethyl groups.

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13. The composition of claim 2, further comprising an isocyanate crosslinker having at least two isocyanate groups.

14. The composition of claim 1, wherein said acid generator is an ultraviolet, visible or infrared radiation or heat activated compound.

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15. The composition of claim 14, wherein said acid generator is selected from the group consisting of: an onium salt, a covalently bound sulfonate group containing compound, hydrocarbysulfonamido-N-hydrocarbyl sulfonate and a combination thereof.

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16. The composition of claim 15, wherein said acid generator is an onium salt.

17. The composition of claim 16, wherein said onium salt has a
10 non-nucleophilic counter anion selected from the group consisting of:
tetrafluoroborate, hexafluorophosphate, hexafluoroarsenate,
hexafluoroantimonate, tetrakis(pentafluorophenyl)borate, triflate,
pentafluoropropionate, pentafluoroethanesulfonate, benzenesulfonate, p-methylbenzenesulfonate and pentafluorobenzenesulfonate.

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18. The composition of claim 16, wherein said onium salt is selected from the group consisting of: an iodonium salt, a sulfonium salt, a hydrocarbyloxysulfonium salt, a hydrocarbyloxyammonium salt, an aryl diazonium salt and a combination thereof.

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19. The composition of claim 18 wherein said hydrocarbyloxyammonium salt is a salt of an N-hydrocarbyloxy substituted nitrogen containing heterocyclic compound.

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20. The composition of claim 19 wherein said N-hydrocarbyloxy substituted nitrogen containing heterocyclic compound is N-ethoxyisoquinolinium hexafluorophosphate.

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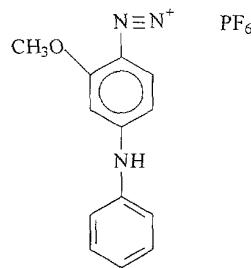
21. The composition of claim 18, wherein said iodonium salt is 4-octyloxyphenyl phenyliodonium hexafluoroantimonate.

22. The composition of claim 18, wherein said acid generator is a monomeric or oligomeric aromatic diazonium salt.

23. The composition of claim 22, wherein said diazonium salt
5 has a counter anion other than a halide.

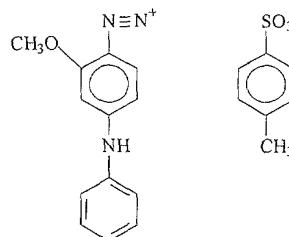
24. The composition of claim 23, wherein said counter anion is selected from the group consisting of: sulfate, bisulfate, tetrafluoroborate, hexafluorophosphate, hexafluoroarsenate, hexafluoroantimonate, 10 tetrakis(pentafluorophenyl)borate, triflate, pentafluoropropionate, pentafluoroethanesulfonate, benzenesulfonate, p-methylbenzenesulfonate and pentafluorobenzenesulfonate.

25. The composition of claim 22, wherein said diazonium salt is
15 selected from the group consisting of: 2-methoxy-4-phenylaminobenzene diazonium hexafluorophosphate represented by the formula:

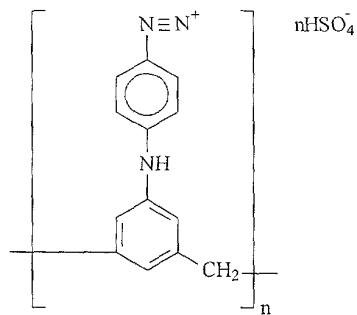


2-methoxy-4-phenylaminobenzene diazonium p-toluenesulfonate represented by the formula:

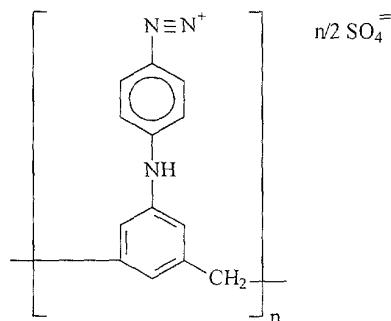
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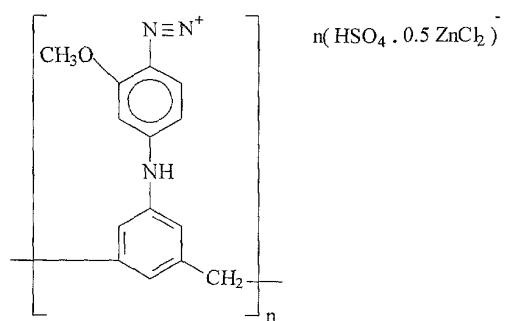
an oligomeric diazonium salt selected from the group consisting of compounds represented by the formula:



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and



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wherein n is from 1 to 11; and a combination of any of the aforementioned compounds.

5 26. The composition of claim 1, wherein said imageable composition further comprises a strong, non-volatile acid having a pKa of not more than about 8.

27. The composition of claim 1, wherein said acid has a pKa of
10 not more than about 4.

28. The composition of claim 27, wherein said strong non-volatile acid is a sulfonic acid represented by the formula:

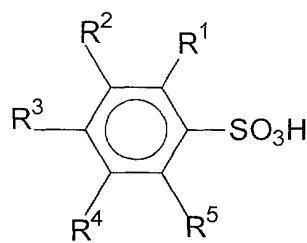
15 R-SO₃H

wherein R is selected from the group consisting of: a substituted or unsubstituted hydrocarbyl of 1 to 22 carbon atoms, a substituted or unsubstituted aryl of 6 to 22 carbon atoms and a mixture thereof.

29. The composition of claim 28, wherein R is selected from the group consisting of: linear, branched or cyclic alkyl of 1 to 22 carbon atom, linear, branched or cyclic haloalkyl of 1 to 22 carbon atom having at least one halogen and a mixture thereof

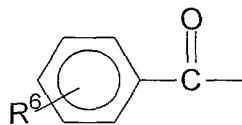
30. The composition of claim 28, wherein said sulfonic acid is an

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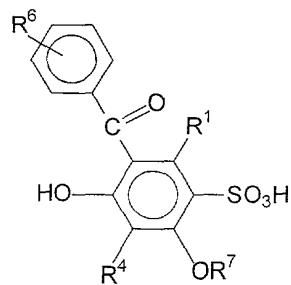
wherein each of R¹, R², R³, R⁴ and R⁵ is independently selected from the group consisting of: hydrogen, alkyl of 1 to 12 carbon atoms, haloalkyl of 1 to 22 carbon atoms having at least one halogen, aryl of 6 to 12 carbon atoms, halogen, hydroxy, alkoxy, cyano, nitro, alkoxy carbonyl and acyl.

31. The composition of claim 30, wherein said acyl is represented by the formula:



10 wherein R⁶ is selected from the group consisting of: hydrogen, alkyl of 1 to 12 carbon atoms, haloalkyl of 1 to 12 carbon atoms having at least one halogen, alkoxy, cyano, nitro, alkoxy carbonyl and acetyl

15 32. The composition of claim 30, wherein said aryl sulfonic acid is represented by the formula:



wherein each of R¹, R⁴ and R⁶ is independently selected from the group consisting of: hydrogen, alkyl of 1 to 12 carbon atoms, haloalkyl of 1 to 12 carbon atoms having at least one halogen, aryl of 6 to 12 carbon atoms, halogen, hydroxy, alkoxy, cyano, nitro, alkoxycarbonyl and acyl
5 and wherein R⁷ is selected from the group consisting of: hydrogen, alkyl of 1 to 12 carbon atoms, haloalkyl of 1 to 12 carbon atoms having at least one halogen, aryl of 6 to 12 carbon atoms, alkoxycarbonyl and acyl.

10 33. The composition of claim 32, wherein said aryl sulfonic acid
is 3-benzoyl-4-hydroxy-6-methoxybenzenesulfonic acid.

34. The composition of claim 1, further comprising a
photothermal converter material.

15 35. The composition of claim 1, wherein said counter anion of
said infrared absorber is the conjugate base of a non-volatile acid.

36. The composition of claim 35, wherein said non-volatile acid
has a counter anion other than a halide.

20 37. The composition of claim 36, wherein said counter anion is
selected from the group consisting of: sulfate, bisulfate, tetrafluoroborate,
hexafluorophosphate, hexafluoroarsenate, hexafluoroantimonate,
tetrakis(pentafluorophenyl)borate, triflate, pentafluoropropionate,
25 pentafluoroethanesulfonate, benzenesulfonate, p-methylbenzenesulfonate
and pentafluorobenzenesulfonate.

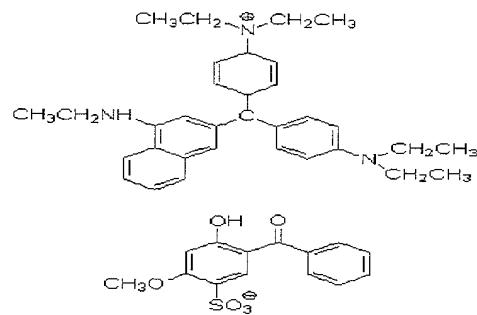
30 38. The composition of claim 1, wherein said infrared absorber is
selected from the group consisting of: a pigment, a dye and a combination
thereof.

39. The composition of claim 38, wherein said infrared absorber is a pigment selected from the group consisting of: black pigments, yellow pigments, orange pigments, brown pigments, red pigments, purple pigments, blue pigments, green pigments, fluorescent pigments, metal 5 powder pigments, polymer bond pigments, insoluble azo pigments, azo lake pigments, condensation azo pigments, chelate azo pigment, phthalocyanine pigments, anthraquinone pigments, perylene pigments, perynone pigments, thioindigo pigments, quinacridone pigments, 10 dioxazine pigments, isoindolinone pigments, quinophthalone pigments, colored lake pigments, azine pigments, nitroso pigments, nitro pigments, natural pigments, fluorescent pigments, inorganic pigments, carbon black, Paris Blue, Prussian Blue and a combination thereof.

40. The composition of claim 38, wherein said infrared absorber 15 is a dye selected from the group consisting of: cyanine dyes, squarylium dyes, pyrylium salts and nickel thiolate complexes.

41. The composition of claim 1, wherein said colorant is selected from the group consisting of a colorant dye, a colorant pigment and a 20 combination thereof.

42. The composition of claim 1, wherein said colorant dye is a blue colorant dye represented by the formula:



43. An imageable element comprising:
a substrate; and
a imageable composition coated on a surface of said substrate,
said composition comprising: an acid curable composition; an acid
5 generator; an infrared absorber and optionally, a colorant, wherein at least
one of said infrared absorber and said colorant has a counter anion
derived from a non-volatile acid.

44. The imageable element of claim 43, wherein said imageable
10 composition comprises a photothermal converting material.

45. A method of producing an imaged element comprising the
steps of:
15 providing an imageable element comprising a substrate and
an imageable composition coated on a surface of said substrate,
said composition comprising an acid curable composition, an acid
generator, an infrared absorber and optionally, a colorant, wherein at least
one of said infrared absorber and said colorant has a counter anion
derived from a non-volatile acid;
20 imagewise exposing said imageable element to radiation to
produce an imagewise exposed element having exposed and unexposed
regions;
baking said imagewise exposed element at a temperature and
period of time sufficient to produce a cured element; and
25 contacting said cured element and a developer to remove the
unexposed regions and thereby produce said imaged element.

46. The method of claim 45, wherein said exposing step is
carried out using an infrared laser.